

### **REMARKS**

Claims 1-6 are pending and under consideration in the above-identified application.

In the Final Office Action dated March 3, 2009, the Examiner rejected claims 1-6.

With this Amendment, claims 1 and 4 were amended. No new matter has been introduced as a result of the amendments.

#### **I. Claim Objections**

The Examiner's objections to various informalities in the claims have been corrected per the Examiner's suggestions. Accordingly, the above objections are now moot. As such, Applicant respectfully requests that the above rejection be withdrawn.

#### **II. 35 U.S.C. § 103 Obviousness Rejection of Claims**

Claims 1-3 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sato et al. (U.S. Patent No. 6,710,986). Applicant respectfully traverses this rejection.

The claims require an intermediate layer that is in-between a pair of ferromagnetic layers. The first layer is a fixed magnetization layer made of a crystalline ferromagnetic material and is located immediately below the intermediate layer. The second layer is a free magnetization layer made of an amorphous ferromagnetic material and is located immediately above the intermediate layer. Additionally, the claims require that an antiferromagnetic layer is coupled to a fixed magnetization layer. As a result of the antiferromagnetic layer, the magnetization of the fixed magnetization layer cannot be inverted.

Sato et al. teaches a structure having an intermediate layer in-between a free magnetization layer and a fixed magnetization layer. Sato et al., Fig. 2. However, Sato et al. does not teach or even fairly suggest an antiferromagnetic layer. Furthermore, Sato et al. does not

teach that such a layer could be coupled to the fixed magnetization layer because Sato et al. teaches that the fixed magnetization layer is on the surface of a buffer layer. Sato et al., Col. 3, lines 42-47. As such, Sato et al. fails to teach or even fairly suggest all the requirements of the claims. Accordingly, independent claim 1 is patentable over the cited reference, as are dependent claims 2-3 for at least the same reasons.

Claims 4-6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Miyatke et al. (U.S. Patent No. 6,842,361) in view of Sato et al. Applicant respectfully traverses this rejection.

Miyatke et al. teaches a magnetic tunnel junction that includes a tunnel barrier (34) in-between a free ferromagnetic layer (32) and a pinned ferromagnetic layer (36). Miyatke et al., Fig. 3. The pinned ferromagnetic layer is on top of a metal line layer (MX). Miyatke et al., Col. 4, lines 6-7. Furthermore, Miyatke et al. does not teach or even fairly suggest an antiferromagnetic layer as required by the claims because, "compared to the conventional memory cell ...the present invention comprises [a] reduced number of layers." *Id.* at Col. 4, lines 9-14. As such, Miyatke et al. fails to teach all the required elements of the claims.

As discussed above, Sato et al. also fails to teach an antiferromagnetic layer, much less that the antiferromagnetic layer is coupled to a fixed magnetization layer, because Sato et al. requires that the fixed magnetization layer is on the surface of a buffer layer. Accordingly, taken either singularly or in combination with each other, the cited references fail to teach or even fairly suggest all the required elements of the claims. Thus, independent claim 4 is patentable over the cited reference as are dependent claims 5-6 for at least the same reasons. As such, Applicant respectfully requests that the above rejections be withdrawn.

**III. Conclusion**

In view of the above amendments and remarks, Applicant submits that all claims are clearly allowable over the cited prior art, and respectfully requests early and favorable notification to that effect.

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